

Annotated Outline of Chapter 3

***Note:** This handout presents an annotated proposed outline for Chapter 3 “Conservation Strategy” of the BDCP HCP/NCCP document. Draft conservation measure titles are provided in Section 3.4 “Conservation Measures.” The full descriptions of conservation draft measures have been presented in previous Steering Committee handouts.*

Chapter 3. Conservation Strategy

3.1 Introduction

This section will include a discussion of the plan’s overall purpose, goals, and principles; a summary of important stressors on covered species and natural communities; and provide an overview of the Chapter contents.

3.2 Biological Goals and Objectives

This section will describe the biological goals and objectives related to the Delta ecosystem, covered natural communities, and covered species. This section will also describe the process used to develop the biological goals and objectives.

3.3 Approach to Conservation: Overview of Key Conservation Measures and Their Integration

This section will describe the general approach to the BDCP conservation strategy. The purpose of this section is to summarize the BDCP conservation strategy and to overview how the conservation measures would be integrated into an overall comprehensive BDCP conservation strategy.

3.3.1 Overview of Strategy

This section will describe primary conservation measures, the structure of the conservation strategy into three main conservation measure categories, and the broad approach to implementing the conservation strategy in the near-term and long-term implementation periods.

3.3.2 North Delta Conservation Measures

This section will generally describe the approach to conservation of covered species in the North Delta in context of the near-term and long-term periods. This section would also describe the logic behind the proposed approach and how water operations, habitat, and other stressors conservation measures are integrated.

3.3.3 West Delta and Suisun Marsh Conservation Measures

This section will generally describe the approach to conservation of covered species within the West Delta and Suisun Bay and Marsh. This section would also describe the logic behind the proposed approach and how operations, habitat, and other stressors conservation measures are integrated.

3.3.4 South Delta Conservation Measures

This section would generally describe the approach to conservation of covered species in the South Delta. This section would also describe the logic behind the proposed approach and how operations, habitat, and other stressor conservation measures are integrated.

3.3.5 East Delta Conservation Measures

This section will generally describe the approach to conservation of covered species in the East Delta. This section would also describe the logic behind the proposed approach and how operations, habitat, and other stressors conservation measures are integrated.

3.3.6 Delta-Wide Conservation Measures

This section will would describe conservation measures that would be implemented throughout the Delta and provide covered species and ecosystem benefits Delta wide. This section will also describe how the approaches described under Sections 3.2-3.5 interact to provide a comprehensive Delta wide approach to conservation.

3.4 Conservation Measures

3.4.1 Water Operations Conservation Measures

3.4.1.1 Introduction

3.4.1.2 Conservation Measures

Full text for the conservation measures are presented in Steering Committee Handout #5.

WAOP1: North Delta Facilities Construction, Preferential Operation, and Bypass Flows.

WAOP2: Fremont Weir Operations.

WAOP3: Deep Water Ship Channel Bypass Weir Operations.

WAOP4: Sutter and Steamboat Slough Flows.

WAOP5: Delta Cross Channel Gate Operations.

WAOP6: Rio Vista Flow Requirements.

WAOP7: Three Mile Slough Gate Operations.

WAOP8: Two Gate Operations – Old River and Connection Slough.

WAOP9: Delta Outflow.

WAOP10: Suisun Bay and Western Delta Salinity Conditions.

WAOP11: Montezuma Slough Salinity Control Gate.

WAOP12: South Delta Diversions.

WAOP13: Old and Middle River Flows.

WAOP14: Delta Salinity Standards.

3.4.2 Physical Habitat Restoration Conservation Measures

3.4.2.1 Introduction

Attributes and Approach

This section will describe key design concepts for enhancing the functions of existing aquatic, wetland, and riparian habitats to benefit covered species and natural communities, and set out the criteria for identifying habitat areas suitable for enhancement. This section will also describe the physical and biological parameters that define functioning restored habitat types and general description of approaches that may be used to restore habitats. Draft information

Preserve Design

This section will describe concepts related to preserve design, including spatial distribution of restored habitat within Delta and Suisun Marsh; temporal considerations for implementing restorations (i.e., near-term vs. long-term conditions); focus on public lands, lands operated by BDCP participants, and willing sellers; and other global design-related concepts.

Site Selection

This section will describe land suitability and availability for restoration of physical habitats (e.g., table showing acres of land within the Delta and Suisun Marsh suitable for restoration of each habitat type x land ownership status).

This section will also describe general criteria for selecting lands for restoration/enhancement.

Preserve Management

This section will describe types of anticipated management activities associated with maintaining habitats (e.g., ongoing control non-native species in restored habitats) and development of site-specific management plans, including plan content.

3.4.2.2 Conservation Measures

Floodplain Habitat Restoration Conservation Measures

FLOO1.1: Modify the Fremont Weir and the Yolo Bypass to provide for a higher frequency and duration of inundation.

FLOO2.1: Create and operate a new flood bypass in the Yolo Bypass/Cache Slough Complex ROA to restore seasonally inundated floodplain habitat.

FLOO2.2: Restore floodplain habitat along ___ miles of the San Joaquin River from Vernalis to Mossdale.

FLOO2.3: Restore floodplain habitat along ___ miles of the San Joaquin River from Mossdale to French Camp Slough.

FLOO2.4: Restore between ___ and ___ acres of inundated floodplain habitat in the South Delta Restoration Opportunity Area.

Freshwater Intertidal Marsh Habitat Restoration Conservation Measures

FIMA1.1. Restore a mosaic of ___ to ___ acres of freshwater intertidal marsh, shallow subtidal aquatic, and transitional grassland habitat within the Yolo Bypass/Cache Slough Complex Restoration Opportunity Area.

FIMA1.2: Restore a mosaic of ___ to ___ acres of freshwater intertidal marsh, shallow subtidal aquatic, and transitional habitat within the Cosumnes/Mokelumne ROA.

FIMA1.3: Restore a mosaic of ___ to ___ acres of intertidal marsh and shallow subtidal aquatic habitat within the West Delta Restoration Opportunity Area.

FIMA1.4: Restore a mosaic of ___ to ___ acres of intertidal marsh, shallow subtidal aquatic, and transitional grassland habitat within the South Delta Restoration Opportunity Area.

FIMA1.5: Restore a mosaic of ___ to ___ acres of intertidal marsh, shallow subtidal aquatic, and transitional grassland habitat within the East Delta Restoration Opportunity Area.

Brackish Intertidal Marsh Habitat Restoration Conservation Measures

BIMA1.1 Restore a mosaic of ___ to ___ acres of brackish intertidal marsh, shallow subtidal aquatic, and transitional grassland habitat within the Suisun Marsh Restoration Opportunity Area.

Channel Margin Habitat Restoration Conservation Measures

CHMA1.1. Support development and implementation of levee construction and maintenance designs that incorporate aquatic, intertidal marsh, and riparian habitat features.

CHMA1.2. Provide for the establishment of native riparian woody vegetation and emergent vegetation on BDCP constructed levees.

CHMA1.3: Enhance channel margin habitats along ___ to ___ miles of Steamboat and Sutter Sloughs to improve habitat conditions for covered fish species.

Riparian Habitat Restoration Conservation Measures

RIPA1.1. Restore between ___ and ___ acres of riparian forest and scrub communities as a component of restored floodplain, freshwater intertidal marsh, and channel margin habitats.

3.4.3 Other Stressors Conservation Measures

3.4.3.1 Introduction

3.4.3.2 Conservation Measures

OTST1: Reduce the Load of Ammonia in Effluent Discharged from the Sacramento Regional County Sanitation District into the Sacramento River if Warranted Based on Research.

OTST2: Reduce the Load of Endocrine Disrupting Compounds in Effluent Discharged from Wastewater Treatment Plants into Delta Waterways if Warranted Based on Research.

OTST3: Reduce the Load of Methylmercury Entering Delta Waterways.

OTST4: Reduce the Load of Pesticides and Herbicides Entering Delta Waterways from In-Delta Sources that are Believed to be Toxic to Covered Fish Species.

OTST5: Reduce the Loads of Toxic Contaminants in Stormwater Pollution and Urban Runoff by Working with Existing Efforts in the Delta.

OTST6: Provide for Rapid Detection of and Response to Toxic Contaminant Events that could Affect Covered Fish Species.

OTST7: Maintain Dissolved Oxygen Levels for Covered Fish Species in the Stockton Deep Water Ship Channel during Periods when Covered Fish Species are Present.

OTST8: Improve the Quality of Water Discharged from Managed Seasonal Wetlands into Suisun Bay and Delta Waterways to Prevent Dissolved Oxygen Sags.

OTST9: Reduce the Risk for Future Introductions of Non-Native Aquatic Organisms from Commercial Vessels.

OTST10: Reduce the Risk for Future Introductions of Non-Native Aquatic Organisms from Recreational Watercraft.

OTST11: Provide for Rapid Detection of and Response to New Introductions of Non-Native Species into Delta Waterways.

OTST12: Reduce the Risk for Establishment of Zebra Mussel and Quagga Mussel in Delta Waterways.

OTST13: Remove Non-Native Submerged and Floating Aquatic Vegetation from Delta Waterways.

OTST14: Increase the Harvest of Non-Native Predatory Fish to Decrease their Abundance.

OTST15: Reduce Mortality of Released Salvaged Fish by Non-Native Predators.

OTST16: Reduce Illegal Harvest of Chinook Salmon, Central Valley Steelhead, Green Sturgeon, and White Sturgeon in the Delta.

OTST17: Reduce Adverse Effects of Harvest on Sacramento Splittail Abundance.

OTST18: Develop and Implement Hatchery and Genetic Management Plans to Minimize the Potential for Genetic and Ecological Impacts of Hatchery Reared Salmonids on Wild Salmonid Stocks.

OTST19: Reduce Losses of Wild Stocks of Chinook Salmon to Commercial Fishing and Recreational Fishing through a Mark-Select Fishery.

OTST20: Establish New and Expand Existing Conservation Propagation Programs for Delta and Longfin Smelt.

OTST21: Screen, Remove, Relocate, Consolidate, Modify and/or Alter Timing of Non-Project Diversions to Reduce Entrainment of Covered Fish Species at within the Delta.

OTST22: Establish No Wake Boating Zones in Delta Waterways to Protect Sensitive Covered Species Shoreline Habitat.

3.4.4 Conservation Measures for Terrestrial and Wetlands Species

This section will describe for each terrestrial and wetlands species any conservation and mitigation measures in addition to those provided under previously described conservation measures.

Mammals

- Salt marsh harvest mouse (*Reithrodontomys raviventris*)
- Riparian brush rabbit (*Sylvilagus bachmani riparius*)
- Suisun shrew (*Sorex ornatus sinuosus*)

Birds

- Tricolored blackbird (*Agelaius tricolor*)
- Yellow breasted chat (*Icteria viriens*)
- Western burrowing owl (*Athene cunicularia*)
- Swainson's hawk (*Buteo swainsoni*)
- Greater sandhill crane (*Grus canadensis tabida*)
- California clapper rail (*Rallus longirostris obsoletus*)
- California black rail (*Laterallus jamaicensis coturniculus*)

Reptiles

- Giant garter snake (*Thamnophis gigas*)

Amphibians

- Western spadefoot toad (*Spea hammondi*)

Invertebrates

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Conservancy fairy shrimp (*Branchinecta conservacion*)
- Longhorn fairy shrimp (*Branchinecta longiantenna*)

- Vernal pool fairy shrimp (*Branchinecta lynchi*)

Plants

- Suisun Marsh aster (*Aster lentus*)
- Alkali milk-vetch (*Astragalus tener* var. *tener*)
- San Joaquin spearscale (*Atriplex joaquiniana*)
- Soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*)
- Delta button celery (*Eryngium racemosum*)
- Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- Legenere (*Legenere limosa*)
- Heckard's peppergrass (*Lepidium latipes* var. *heckardii*)
- Mason's lilaeopsis (*Lilaeopsis masonii*)
- Delta mudwort (*Limosella subulata*)

3.5 Monitoring Plan

This section will describe the BDCP commitments for implementing a monitoring program to provide the information necessary to adaptively manage BDCP implementation.

3.5.1 Monitoring Responsibility

3.5.2 Types of Monitoring

3.5.3 Monitoring Protocols and Protocol Development

3.5.4 Integration of Monitoring with Other Programs

3.5.5 Compliance Monitoring

3.5.5.1 Effects Monitoring

3.5.5.2 Preconstruction Surveys

3.5.5.3 Construction Monitoring

3.5.5.4 BDCP Implementation Monitoring

3.5.5.5 Performance Monitoring

3.5.6 Effectiveness Monitoring

3.5.7 System Monitoring

3.5.8 Database Development and Maintenance

3.5.9 Monitoring Schedule

3.5.10 Reporting

3.6 Adaptive Management

This section will describe the components of the BDCP adaptive management program, including its purpose and scope.

3.6.1 Implementation Adaptive Management

3.6.2 Program-Level Adaptive Management

3.6.3 Adaptive Management Activities

3.6.4 Incorporation of Science

Program Status Reviews

Preparation and Review of Reports and Plans

Information Sharing

3.6.6 Changed Circumstances and Remedial Measures

3.6.7 Unforeseen Circumstances

3.7 Summary of the Approach to Minimization and Mitigation of Effects

This section will discuss the approach under the BDCP to ensure that the effects of covered activities are minimized and mitigated to the maximum extent practicable, consistent with the requirements of section 10 of the ESA and Natural Community Conservation Planning Act.

3.8 Summary of Expected Outcomes for Covered Species and Natural Communities

This section will provide a summary of the expected outcomes for covered natural community and covered species after the full implementation of the conservation strategy and covered activities. The section will address each species and natural community individually and identify which conservation measures and covered activities are expected to have the most effects on them and what the anticipated ecological outcome is anticipated for each.